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# HORTICULTURE IN CANADA

BY

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The subject which I have the privilege of bringing before you on this occasion is that of Horticulture in Canada, and in the discussion of this topic it is my purpose to treat of horticulture in its widest sense, as embracing the art and science of the cultivation of trees, shrubs, and plants for both utilitarian and decorative purposes. This subject covers so wide a field that the brief period of an hour will admit of touching on but a few of its more important features, and, with the view of presenting these in a clear and intelligent manner, I shall first give you a very short sketch of the country whose horticultural progress I am expected to outline.

The Dominion of Canada consists of seven provinces, four provisional territories, and a vast area to the north, much of which is yet unexplored. If the traveller through this country takes the train at its eastern boundary, at Halifax on the broad Atlantic, he may ride with one change of cars through to the shores of the Pacific, covering a distance of three thousand six hundred and sixty-two miles, and all within the settled area of Canada. The three most easterly provinces form a group partly surrounded and more or less intersected by the ocean, known as the Maritime Provinces. Following these come the goodly provinces of Quebec and Ontario, the latter stretching westward along the margins of the Great Lakes — Ontario, Erie, Huron, and Superior — until its western boundary is found beyond the Lake of the Woods. Here Ontario joins the "prairie province" of Manitoba, west of which lie the four gigantic provisional territories, — Assiniboia, Saskatchewan, Alberta, and Athabasca, — comprising vast plains. In a part of the territories a wide belt of the country, lying north of the 49th parallel, — which forms the boundary line between the United States and Canada, — has a dry climate, caused by the hot winds which blow northward from the great American desert. But beyond the spent force of these hot currents, beginning from one hundred and twenty-five to one hundred and seventy-five miles north of the boundary, we

find immense partly wooded areas, watered by streams flowing northward, with a soil wonderfully rich and fertile and with conditions favorable for mixed farming, especially for the raising of cattle and for dairying. Still further west stands British Columbia with its sea of mountains enclosing an area abounding in minerals, coal, and lumber. Its waters teem with fish, and some of the fertile valleys are being fast converted into smiling fields of grain and prolific orchards.

Let us touch briefly on the conditions found in each of the divisions of this your neighboring country, and note the indications of horticultural progress. Prince Edward Island, the smallest of the provinces of Canada, has an area of two thousand one hundred and thirty-three square miles, is one hundred and fifty miles long and varies from nine to thirty miles in width, and has a population of one hundred and ten thousand. This island has a fertile soil; the climate is cool and bracing in summer, but rather severe in winter. Many varieties of apples, plums, and cherries succeed well there, and gooseberries, currants, and other small fruits are produced in abundance; but the winter season is too severe to admit of growing the more tender fruits successfully. The cultivation of flowers is very general, especially in the cities and towns, in which many avenues of stately trees are found, most of which are European. So also are the shrubs which decorate the grounds about rural and city homes. The number of varieties of trees grown are few, and in shrubs one notices the absence of many beautiful forms which are grown very successfully in other provinces, and which will, no doubt, when introduced, do well here. Horticulture is encouraged by the holding of exhibitions of fruits and flowers in the capital at Charlottetown and elsewhere, which are assisted by grants from the provincial treasury. There is a fine park in Charlottetown, comprising about one hundred and fifty acres, with beautiful drives through the wooded areas and along the seashore, — a cool and delightful place of resort for the citizens throughout the summer months.

Across the Northumberland Straits from Charlottetown, some thirty miles distant, lies the Province of Nova Scotia, with its twenty thousand five hundred and fifty square miles of area and a population of four hundred and fifty-one thousand. The climate of the eastern part of this province is mild and well

adapted for the growing of many varieties of fruit of high quality and in great perfection. The Annapolis valley, so well known as the scene of Longfellow's beautiful and tragic poem, is specially adapted by climate and situation for fruit growing, and is rapidly being converted into a vast orchard where the choicest sorts of apples, pears, plums, and cherries grow in the greatest abundance. In this valley there is a special school of horticulture, receiving a liberal provincial grant, where practical training is given to students in the propagation and growth of fruits, ornamental shrubs, trees, and flowers. To drive among the beautiful scenes in that charming valley, when the trees are covered with blossoms in the spring, or when their branches are pendant with golden fruit in the autumn, is a delight not soon to be forgotten. There are many other localities in Nova Scotia where fruit culture is carried on very successfully, and the exports of fruit from this province are large and constantly increasing. The Fruit Growers' Association of Nova Scotia, which is also aided by provincial funds, is a strong and active organization, holding meetings at intervals during the year for the discussion of subjects relating to fruit growing and other branches of horticulture, and the information brought out is published in the proceedings of the Association. During the past year the quantity of apples exported was about five hundred thousand barrels. Some of this fruit, I am told, finds its way to Boston, where the high-flavored Gravensteins are said to be much appreciated; but much the larger portion finds a ready market in the larger cities in Great Britain. In Halifax there are several parks, including in all about two hundred and eighty acres. The Public Gardens, containing about sixteen acres, are also very attractive and contain some excellent specimens of trees, mostly European, and many varieties of shrubs and conifers, including some choice specimens of Japanese Retinosporas, notably of *Chamaecyparis plumosa* and *C. plumosa aurea*. The Scotch heather, *Calluna vulgaris*, also luxuriates here, and some of the fine flower beds are margined with this pretty plant, which has become naturalized and is growing in large patches in the public parks. Truro and other smaller cities and towns west of Halifax are emulating the capital in the establishment of parks, adorning their streets with avenues of trees, and embellishing their homes with groups of choice shrubs and beds of flowers.

In New Brunswick, with an area of twenty-eight thousand square miles and a population of three hundred and twenty-one thousand, the climate is not so favorable for general progress in horticulture as in the sister province of Nova Scotia. While orchards have been successfully established in the valley of the St. John river, the varieties of fruit grown are chiefly of the hardier sorts, and the cultivation of large fruits is not general. Small fruits, however, are grown in abundance, and the cool weather in early summer retards the ripening season and permits of the growing of large quantities of luscious strawberries, which, ripening after the main supplies in the New England States, find a ready market in Boston and other cities, with but little competition and at good prices.

Recently a public park comprising two hundred and forty acres has been established at the city of St. John, occupying a commanding position overlooking the turbulent waters of the Bay of Fundy. Through this park roads are being laid out amidst charming and, in some places, rugged scenery. This must in time become a most attractive place of resort.

The Province of Quebec, with an area of two hundred and twenty-seven thousand square miles and a population of about one and one-half million, is also making progress in horticulture. In the valley of the St. Lawrence there are many fine orchards, and nowhere does the celebrated Fameuse apple reach so high a degree of perfection as on the Island of Montreal, where many varieties of pears also, and plums of fine flavor, thrive well. In the eastern townships, on the south side of the river St. Lawrence, fruit growing is carried on to a considerable extent and quantities of apples from this territory find their way to Montreal or are shipped to foreign markets; but on the interior lands, on the north side of the river, only the hardier fruits succeed, and the orchards are few and small. In Montreal and other cities and towns in this province, much taste is displayed in the laying out of the public parks and squares, and in the ornamentation of the grounds of the more wealthy members of the community. Horticultural societies and a Provincial Fruit Growers' Association have been organized, which are aided by provincial funds; annual exhibitions are held, and thus the love for the cultivation of fruits and flowers is fostered.

Ontario is the banner province of the Dominion, and its

wonderful variety of climate and rich horticultural possibilities are as yet but partially known. With the noble area of two hundred and twenty thousand square miles, and a population of two million one hundred and fifteen thousand, this province has twelve and a half million acres of cleared land, about three hundred and twenty thousand acres of which are under orchard, garden, and vineyard. The number of apple trees of bearing age in this province is about six millions, while there are three and a half millions more of younger trees, most of which will soon be in bearing condition. The yield of apples in 1896 was very large, and is estimated at fifty-six million bushels. In the Niagara peninsula, and along the shores of the western part of Lake Erie, peaches are grown very successfully, and there are said to be over half a million of peach trees planted in that part of Canada. Grapes, also, are grown in immense quantities. There are about three million of bearing grape vines in Ontario, producing annually about fifteen million pounds of grapes. There are also large orchards of pears, plums, and cherries, so that Canadian markets are well supplied with home-grown fruits of excellent quality throughout the season, and a large quantity of apples is exported to Great Britain. During the past year more than two million barrels were exported from Montreal. Ontario also sends large supplies of fruit to the prairie districts in the west. A thriving organization, known as the Fruit Growers' Association of Ontario, has been in existence for the past twenty-eight years, and has done much to stimulate fruit growing throughout the province, and also to cultivate a taste for ornamental trees, shrubs, and flowers. This Association receives a liberal annual grant from the provincial funds. The large display of fruit and flowers at the leading annual exhibitions helps to draw further attention to these interesting and important subjects. The Ontario government also gives annual grants towards the support of horticultural societies, which are established in most of the towns and cities of the province. Under this stimulus, frequent floral exhibitions have been held, and the people have been led to vie with each other in beautifying their homes by the planting of trees and flowers. Many large floral establishments are well supported by lovers of flowers. In the cities and larger towns public parks have been established, valuable not only as health resorts, but as repositories for some of nature's choicest

arboreal gifts.<sup>1</sup> Horticulture also forms an important part in the curriculum of the Ontario College of Agriculture, which is located at Guelph.

Adjoining Ontario at its western extremity is the Province of Manitoba, with sixty-four thousand square miles of territory and a population of one hundred and fifty-two thousand. Here the climatic conditions are too severe to admit of the rapid extension of horticulture. The larger fruits are not successfully grown, but many of the small fruits are produced in abundance. The people are everywhere fond of flowers, and the long days and abundance of sunshine in the summer months give a wealth of bloom to many annuals and hardy perennials unknown in eastern climates.

Westward of Manitoba lie the four organized territories of the Canadian Northwest — Assiniboia, with an area of eighty-eight thousand square miles; Saskatchewan, one hundred and one thousand; Alberta, one hundred and five thousand; and Athabasca, one hundred and three thousand. These great divisions extend from the western boundary of Manitoba to the Rocky Mountains, are partly traversed by railways, which have opened up the country for settlement, and a sparse population of from fifty thousand to sixty thousand people is scattered here and there throughout this very large area. The love of trees, shrubs, and flowers is universal on the plains, and luxuriant gardens full of bloom are frequently found among the settlers. In the country to the north lie the unsurveyed and but partly explored districts, occupied only, as yet, by widely distant trading posts and occasional settlers, but mainly in possession of Indians and fur-traders. In this wide expanse are included the districts of Ungava, Keewatin, Franklin, Mackenzie, and Yukon, comprising in all about a million and a half square miles, exclusive of the water areas.

The most westerly province, British Columbia, includes three hundred and eighty-two thousand square miles and has a population of about one hundred and twenty-five thousand. In the busy mining districts not much attention is paid to horticulture, but west of the Coast Range of mountains, where the climate is mild

<sup>1</sup> The lecture was illustrated with lantern slides, showing scenes in the public parks and gardens in the different cities in the Dominion; also views of many beautiful individual specimens of ornamental trees and shrubs grown on the experimental farms.



and genial, much like that of England, fruits and flowers grow in profusion. There the holly, laurel, rhododendron, and yew flourish with the apple, pear, plum, and cherry, and, in some localities, the peach. In those parts of the province between the Coast Range and the Rockies there are many fine valleys, some of which have not sufficient rainfall to admit of the successful cultivation either of grain or fruit without irrigation. There are, however, many mountain streams available for this purpose and on some of the ranches very fine apples are grown. The taste for flowers is almost universal, and the long, mild season permits of many of them being grown in perfection. This province has also a Fruit Growers' Association, assisted by a grant from the public purse, and exhibitions of fruits and flowers are held annually in the larger towns and cities. Vancouver and Victoria have both very fine public parks.

The progress of horticulture, as well as agriculture, throughout Canada has been greatly stimulated by the organization and maintenance of experimental farms by the Dominion Government. Ten years ago this good work was begun, and while the greater attention has been given to measures looking towards the improvement of farming, many lines of horticultural work have been vigorously prosecuted. These experimental farms are five in number, the central or principal farm being located at Ottawa, the seat of government, — where, on the boundary line between Ontario and Quebec, it serves the purposes of these two important provinces, — and the four branch farms in the more distant provinces of the Dominion. A site was chosen for one of these at Nappan, in Nova Scotia, near the dividing line between that Province and New Brunswick, where it ministers to the needs of the three Maritime Provinces. One was located near Brandon, in the central part of Manitoba. A third was placed at Indian Head, a small town on the Canadian Pacific Railway, in Assiniboia, one of the Northwest Territories; and the fourth at Agassiz, in the coast climate of British Columbia. The climatic conditions prevailing at these several points are all very different, and each location in this respect fairly represents a large area.

At each of these farms, orchards and fruit plantations have been established and a large number of varieties of fruits tested, while similar experimental work has been carried on with many different sorts of ornamental trees, shrubs, and flowers. The

selections made in each case have been of such varieties as were thought to be most likely to succeed in the climates in which they were to be tried. In the Maritime Provinces the climate resembles that of many parts of New England, and the branch experimental farm at Nappan occupies a fairly representative position. The climate is milder and more moist than that of Ottawa, and all the varieties of trees and shrubs which succeed at the central farm do quite as well, or better, at Nappan, and many varieties of fruits which thrive in Nova Scotia are not able to endure the more severe winters at Ottawa. At this eastern branch farm there are now nearly four hundred varieties of large and small fruits under trial and about three hundred varieties of ornamental trees and shrubs, and most of these are making satisfactory growth. Many additions are made to these lists every year. Already these plantations are proving a useful guide to the people in the Maritime Provinces, whether they desire to grow fruit or to beautify their homes by ornamental planting.

Passing now at one bound over a distance of seven hundred and forty-two miles west of Nappan, we find ourselves at Ottawa, the capital. Three miles from the centre of the city lies the central experimental farm, consisting of four hundred and sixty-five acres. Ten years ago this land was liberally sprinkled with stumps and stones, and encumbered with one hundred and forty acres of second-growth timber and forty acres of swamp. This has all been cleared and reclaimed, and brought into a fair condition of cultivation. About three hundred and thirty acres are devoted to agricultural work, thirty-five acres to the testing of fruits and vegetables, twenty-one acres to experiments with forest trees, nine acres to ornamental planting along the margins of the roads and about the buildings, and sixty-five acres to an arboretum and botanic garden.

There is an office building with chemical laboratory below, and overhead a museum of farm products, in which the fruits grown at the several farms make a striking display. Near by are the houses of the chemist, botanist, and horticulturist, about which there are some pretty groups of trees and shrubs.

The conservatory consists of two glass structures, each seventy-five feet long, in one of which there is a fair collection of economic and ornamental plants. In the list of the former will be found tea, coffee, cinnamon, camphor, pepper, cinchona,

cocoa and other plants serviceable to man. There are also collections of orchids and cacti, with palms and ferns and many of the commoner house plants. Another house is used, during the early months of the year, for testing the vitality of seed grain for farmers and for general propagating purposes.

The barn with adjacent planting shows that the surroundings of even a barn may be made attractive by a judicious use of trees and shrubs.

Orchards have been planted and are used for testing fruits, and the number of varieties of large fruits under trial here is about eight hundred, and of small fruits about as many more. Many new varieties have been produced on the farm, by growing large numbers of seedlings of choice sorts and selecting the best, and by cross-fertilization. Comparative tests have also been made of a large number of vegetables.

A useful adjunct to the horticultural department is the apiary, where the busy bees work all the summer day, gathering stores of honey from the flowers of various plants and trees, and in carrying on their regular work render valued assistance in fertilizing the blossoms of fruits.

Some people object to planting trees, fearing they may not live long enough to realize much enjoyment from them.<sup>1</sup> To produce the best results comparatively small specimens should be selected. A young and thrifty tree accommodates itself to change of location much more readily than an older one, and the young tree usually develops its normal form more perfectly.

During the early years of our work collections of bulbs — including lilies, hyacinths, narcissus, and many other sorts — were planted in the autumn; but the ground being open and without shelter, the snow at times was so blown off the ground as to leave it nearly bare and most of the bulbs were killed during the winter. To provide shelter, and collect and retain snow over them, an enclosure hedged with arbor vitæ and Norway spruce was planned and the bulbs planted within it; since then nearly all have wintered well. During the winter the enclosure and its surroundings are protected by snow, which gathers within and about it to a considerable depth. The evergreen margin is now about three and a half feet high, and portions of it are almost covered with snow during the colder part of the season.

<sup>1</sup> Views were shown to demonstrate the development in growth and beauty which can be made in a brief period of seven or eight years.

The beds outside this enclosure afford different aspects, which make them very suitable for certain classes of plants.

Within, a constant succession of bloom during the summer is maintained: hyacinths, tulips, and other bulbs in the spring, and later fine masses of lilies, herbaceous peonies, and irises are grown.

The lilacs, when in bloom in the spring, are among the most beautiful of shrubs, and what delightful improvements have of late been made in this old-fashioned favorite! More than sixty varieties are under test at Ottawa, and nearly all are doing well. Charles the Tenth is one of the best; it is very rich in color, a wonderfully free bloomer, and the clusters of flowers are large. Alba grandiflora is also a good variety; its large white flower clusters contrasting with the rich deep green foliage make it very attractive.

A group of Scotch Pines, *Pinus sylvestris*, is a prominent feature in one part of the grounds; this was planted eight years ago. The trees were then eighteen inches high; now they measure from thirteen to fourteen feet. The rich green color of this species, which is well preserved throughout the winter, makes this tree an attractive object at all seasons of the year.

The Rocky Mountain Blue Spruce, *Picea pungens*, is one of the most valuable introductions of late years, and ranks among the most beautiful of hardy evergreens. The foliage in some specimens assumes a rich shade of steely blue, most striking in the early part of the summer. Many of these trees have been planted in different exposures on the central farm, during the past seven years, and all have proved perfectly hardy.

The European Mountain Ash, or Rowan Tree, *Pyrus Aucuparia*, is a fine object on the lawn when well-grown and clothed with branches to near the ground. Its beautiful foliage and abundant clusters of white blossoms in the spring, succeeded by bunches of scarlet berries in the autumn, make it attractive all through the season.

The Katsura Tree, *Cercidiphyllum Japonicum*, from northern Japan, is an interesting tree, which is quite hardy at Ottawa. The unique character of its foliage as well as its handsome form render it most desirable.

The Sweet Chestnut, *Castanea sativa* var. *Americana*, is a native of the western part of Ontario and is grown with some difficulty

in the climate of Ottawa. After several failures, two or three trees have now become established and are doing well. One of these blossomed last spring.

The variegated Dogwood, *Cornus mas* var. *variegata*, is one of the most beautiful shrubs at all seasons of the year. The foliage is richly variegated with white and the variegation is well maintained throughout the season.

When speaking of the divisions made of the land at the central farm and the purposes to which the several portions were devoted, I stated that sixty-five acres had been set aside for an arboretum and botanic garden devoted to the testing of trees, shrubs, and plants from all parts of the world. Work was begun in this branch six years ago, and already nearly two thousand species and varieties of trees and shrubs, and about one thousand of herbaceous perennials, have been brought together from all the northern sections of the globe and are being tested as to their suitability for the climate of Ottawa. Canada was for a long time the only important British colony without a botanic garden. This stigma has now been removed, and it is hoped that this institution at the farm will soon reach that stage of advancement which will make it a credit to the country.

Permit me to direct your attention for a short time to a few of the individual specimens on this part of the grounds:

The European Larch, *Larix Europea*, is a very handsome tree, valuable for its timber. It is a rapid grower and has a most graceful drooping habit.

The Golden Arbor Vitæ is a beautiful form of the common Arbor Vitæ, *Thuja occidentalis*, in which the foliage assumes a golden yellow hue. This is a brilliant object for a lawn and makes a beautiful hedge.

The Pyramidal Arbor Vitæ is another interesting form of the same species, quite pillar-like in its growth.

The Austrian Pine, *Pinus Austriaca*, is a stately evergreen, of fine form and habit, very hardy, and a fairly vigorous grower. A tree in the Arboretum which when planted six years ago was eighteen inches high now stands about seven feet.

The Norway or Red Pine, *Pinus resinosa*, has also a stately habit, but is of softer outline than the Austrian Pine and makes a handsome tree.

The Mountain Pine, *Pinus Montana*, is a very desirable object

for a lawn. Its low-growing, bushy habit, with branches close to the ground, makes it well adapted for localities where space is limited.

The Tartarian or Bush Honeysuckle is a free-flowering shrub and one of the earliest to bloom in the spring, and when covered with its pink or white flowers, or later with its bright-colored berries, is very pretty.

Van Houtte's *Spiræa*, *Spiræa Van Houttei*, is a lovely shrub, which, during the latter part of May and early in June, is literally covered with masses of white bloom. In growth it has a pendulous habit and is very graceful in form.

*Spiræa Bumalda* is another species of the same genus, which has an upright form. This is also a free bloomer and is very attractive.

The Weigelas are very beautiful shrubs which are not entirely hardy at Ottawa, the new wood being usually killed back more or less by the severe weather in winter. In most instances, however, a sufficient quantity of the wood survives to give a considerable amount of bloom. Siebold's Variegated Weigela has proved one of the hardiest forms at the central farm. It blooms abundantly in its season, and its variegated foliage makes it at all times very attractive.

The different species and varieties of Philadelphus (known also as Syringa and Mock Orange) are charming objects for the flower border, and quite hardy. The flowers vary in size from one to two inches across; some of them are single and some double; most of the varieties are richly perfumed.

The Snowball, *Viburnum opulus* var. *sterilis*, is an old-fashioned, but most desirable species for the shrubbery. During the blooming season it is literally covered with masses of snow-white bloom. *V. lantana* and *V. dentatum* are also very valuable hardy ornamental shrubs.

The Siberian Cornus, *Cornus alba* var. *Sibirica*, is another very useful and hardy sort. It is a pretty shrub when covered with its flat, white clusters of bloom in June; and when devoid of foliage during the winter, its brilliant red stems form a beautiful contrast with the white background of snow.

The Russian Olive, said to be a hardy form of *Elæagnus hortensis* var. *angustifolia*, is a small tree of very graceful habit, with foliage and branches of a charming silvery hue, which is best

brought out where it has a background of dark green growth. This is a very hardy tree and endures the severe climate of the northwest plains well, and when in bloom its numerous small yellow flowers fill the air with their fragrance.

Later in the season the Japanese Hydrangea, *Hydrangea paniculata* var. *grandiflora*, becomes a very prominent object in the collection of shrubs, from the large bunches of flowers so freely produced at the ends of the branches. This species has found its way into public favor very rapidly. Only twenty-three years have passed since this shrub was first introduced from Japan, and during that comparatively brief period its merits have been universally recognized and it has become one of the most widely distributed and favorite shrubs in cultivation.

*Populus Berolinensis* is a Russian Poplar and one of the hardiest species tested. It endures the climate in all parts of Canada well, making a strong and rapid growth. Many thousand cuttings of this tree have been sent out from the experimental farms to settlers in different parts of the Canadian Northwest. These strike readily and soon form handsome trees, wind-breaks, or hedges. A specimen which was planted in the arboretum at Ottawa six years ago as a small tree now stands over twenty-five feet high.

Many inquiries are made every year as to the best sorts of shrubs or trees to plant for hedges. To gain experience and furnish object lessons, many different sorts are being tested for this purpose. Seventy-five varieties have already been planted as sample hedges, each fifty feet long, and a large proportion of them have had five or six years' growth. These are proving an attractive feature in connection with the ornamental planting at the central farm.

A journey of one thousand four hundred and thirty-seven miles west, by the Canadian Pacific Railway, brings us to the flourishing town of Brandon, in Manitoba, adjoining which is the experimental farm for that province. It is located partly in the valley of the Assiniboine river and partly on the heights above the bluffs which margin the valley. This farm has been greatly improved by the planting of trees, about sixty-five thousand of which have been put out in avenues, shelter belts, clumps, and hedges. Most of the hedges have been planted with quick-growing trees, such as poplars and willows, and enclose

good-sized plots of ground. These hedges grow quite tall and act as wind-breaks during the summer and help to collect large banks of snow in the winter, which, on melting, leaves the ground in a very favorable condition of moisture. These plantations have placed examples before the settlers, which many have been induced to follow, and this incentive has produced gratifying results. Tree planting has been further stimulated by free distributions of tree seeds, large quantities of which have been collected, especially of the Box Elder, *Negundo aceroides*, and the Green Ash, *Fraxinus viridis*. These seeds have been hitherto collected in the river valleys and ravines in the bluffs in Manitoba and the Territories, and during the past seven years more than five tons of such seeds have been distributed free by mail, and during the same period about six thousand packages of young forest trees and cuttings have been sent out in the same way to settlers in that country. Last year the native trees planted on the two western experimental farms produced seed freely, and more than a ton of this has been collected for distribution during the coming season. An arboretum has been started at Brandon, and there are more than one hundred species and varieties of trees and shrubs in it which have proved hardy, and many more are under test. A large number of varieties of flowers have also been tried. Nearly all the annuals do well, and the large amount of sunshine they enjoy there brings many of the species to a higher degree of perfection and results in a greater abundance of bloom than is usually found in the east. In perennials, the hardy list includes Tulips, Herbaceous Peonies, several species of Iris, Hemerocallis, Aquilegia, Aconite, Delphinium, and many others. The love of flowers among the people is very general, and many take great pride in their gardens.

While most of the hardier varieties of small fruits, such as raspberries, currants, and gooseberries, are grown with success, all attempts to grow the larger fruits produced in the east, such as apples, crab apples, pears, plums, and cherries, have failed; the trees do not endure the climate. There is, however, one small wild crab, *Pyrus baccata*, with a fruit about the size of a large cherry, which has been obtained from the northern part of Siberia, that has proved perfectly hardy, having stood four or five winters without showing any sign of winter killing. This bears fruit very freely, and notwithstanding their diminutive



size these tiny apples make excellent jelly, and in their present unimproved state would be much appreciated. Efforts are, however, being made to improve this small crab by cross-fertilizing it with many of the hardiest sorts of apples. A large number of these cross-bred seedlings will be ready for planting on the northwest farms in another year. Suitable enclosures are being prepared which will afford the young trees some protection and within two or three years it is expected that some of these will bear fruit. Similar experiments have also been carried on with *Pyrus baccata prunifolia*, which has also stood one winter in the northwest without injury, and this fruit is about double the size of that of *P. baccata*. It is probable that some of these cross-bred seedlings will bear fruit of larger size and improved quality, which will be valuable to the settlers there. These trees are both small and low-branched and well adapted to endure the climatic conditions prevailing in the prairie country.

The wild Plum, *Prunus Americana*, is found native in different parts of Manitoba and is common in the valley of the Assiniboine river and in the other river valleys in the southern part of that province. The fruit varies much in size, color, and quality, some trees producing red fruit and others yellow, and while some of the fruit is but slightly astringent and of fair quality, other samples are scarcely edible. Efforts are being made to improve the wild plum by selection from seedlings grown from the best varieties. It is proposed also to follow this up by cross-fertilizing with better sorts.

The Sand Cherry, *Prunus pumila*, is also a native of the far west. It is common about the Lake of the Woods and has been found on the prairies as far west as the 108th meridian, and as far north as Prince Albert, which is about three hundred miles north of the United States boundary. The Sand Cherry is a very variable fruit; the commoner forms are about the size of a large Marrowfat Pea, with a disproportionately large stone and astringent flesh, while occasional bushes are found bearing fruit as large as the English Morello Cherry, with a much larger proportion of pulp to stone and a superior quality of flesh. Fruits subject to such free variations in the wild state may be expected to improve still more, in size and quality, under the influences attending higher cultivation and cross-fertilizing. It is believed that the prospects in connection with the efforts which are being made to

improve the fruits referred to are hopeful, and that there will in time be produced such varieties as will prove useful fruits to the people of the northwest country.

A further journey of one hundred and eighty-five miles over the plains brings us to the experimental farm at Indian Head, in Assiniboia, one of the Northwest Territories. This farm is about the same size as that at Brandon, viz., six hundred and eighty acres. When this land was purchased it was a piece of bare prairie, without tree or bush. During the eight years it has been occupied tree planting on a rather large scale has been carried on, and there are now growing on this farm, in shelter belts, blocks, avenues, wind-breaks, and hedges, more than one hundred thousand trees. Difficulties were encountered at first from the very strong winds, which gave the trees a stunted appearance, but these obstacles were gradually overcome and the trees have now made such a free growth that they protect one another, producing a vast improvement in the appearance of the place, and affording much shelter.

Although the climate is more severe here, the experiences had with fruit trees and with forest and ornamental trees, as well as with flowers, are nearly the same as those which have been gained at Brandon.

A further railway ride of five hundred and fifty miles from Indian Head brings us to the end of the one thousand miles of plains which stretch from the easterly part of Manitoba to the Rocky mountains, and now we find ourselves ascending among the foot-hills, the landscape broken into bluffs and valleys with clumps of wood and park-like openings between them, and after two or three hours more of journeying, Banff, where the Canadian government has established a national park, is reached. It nestles among the mountains, and the efforts to improve this beautiful spot have been mainly in the way of making roads so as to open up the romantic beauties of the place, and render those points which afford the most striking views easily accessible. As we approach this elegant resting place for tourists, we pass the "Three Sisters," a lovely group of mountains; also the Cascade mountain, whose bold rocky summit rises abruptly from near the railroad track more than five thousand feet above the valley. This mountain derives its name from a small cascade which dashes down the mountain side, in which it has worn a distinct channel.

Some of the most lovely views to be had anywhere in the mountains are to be seen at Banff, where there is a delightful combination of mountain, water, and forest. A museum has been established here by the government, which contains collections of the mammals, birds, and plants found in the national park.

There are also some beautiful lakes in this neighborhood. Lake Louise is one of the prettiest. The bright green color of its waters contrasts strongly with the pure white of the glaciers beyond, while the many-hued cliffs, with various shades of brown on the one side and the deep green of the spruce-clad banks on the other, all help to form a most harmonious and striking picture. Near by, but about a thousand feet higher, Lake Agnes bursts upon the view, with wilder and totally different surroundings.

One more stretch of about four hundred and eighty miles, through wonderfully varied mountain and valley scenery, takes us through to the valleys and delta lands of the coast line. Here we have the coast climate, which, on this part of the shore of the Pacific, is cool in summer and mild and moist in winter; but returning eastward towards the interior, it becomes hotter in summer and colder in winter, with less rain.

At Agassiz, seventy miles east of the ocean, the most westerly of the experimental farms is located, in the valley of the Fraser river. Seven years ago this place was a wilderness. Now there are one hundred and thirty acres of land cleared and under cultivation, and about half of it has been planted to fruit, and more than two thousand varieties of fruits are under test there, nearly all of which are doing well. The climate is mild, and suitable for this industry, and nowhere do the plum, apple, cherry, and pear bear fruit in greater profusion. Every variety likely to be of benefit to the country is being tested, so that the fullest information may be available to the settlers as to the best and most profitable varieties to plant.

All sorts of small fruits succeed remarkably well here. A very large number of ornamental trees and shrubs are also successfully grown, including some of the more tender varieties, which are not hardy at Ottawa. Flowers also succeed admirably in this moist climate. The Japanese and other lilies grow luxuriantly, and during the flowering season they fill the air with their fragrance.

I must not trespass further on your time. I have but touched here and there on the almost limitless field covered by my subject. I hope, however, that I have succeeded in showing that horticulture is not entirely neglected in Canada, but that individuals, communities, and governments (both Provincial and Dominion) from one end of the country to the other are striving to help along this good work. While we cannot expect soon to reach that degree of horticultural advancement which we see and admire so much in older and wealthier communities like your own, we are striving to follow in a measure your noble example and to profit by the generous help which you are always ready to give. Your Arnold Arboretum has aided our experimental farm work in a princely manner, and your ever welcome publications are a constant stimulus towards progress. Although not under quite the same form of government, we are of the same stock as yourselves, and the love for and appreciation of the marvellous beauties of nature brings like pleasure wherever we dwell, whether we acknowledge as our ruler a worthy president or a matchless queen. Horticulture is bounded by no political lines, but in every community where the mind is sufficiently cultured to appreciate the wonderful beauties with which the world is studded, there these lovely trees and shrubs and flowers, which combine so much of grace and beauty, become a perennial source of quiet delight. They are but expressions of the thoughts of the great Creator, who established and sustains the laws which govern their growth and development. Some love for the beautiful in nature is found in almost every breast, and companionship with such charming objects tends to deepen and enlarge that feeling of admiration, to elevate our thoughts and lead them from Nature up to Nature's God. Their beauty is inspiring, and while we study them we catch the spirit and gladly follow the teaching of the great Master in his inimitable Sermon on the Mount, when, gazing on the lovely flowers growing around him, with the deepest insight into the perfection of their beauty, he exhorted his hearers to "Consider the lilies of the field how they grow. . . . I say unto you that even Solomon in all his glory was not arrayed like one of these."